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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,706	06/25/2003	Yasuhiro Yoneda	239514US90	9995
22850	7590	05/02/2006	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			DEHGHAN, QUEENIE S	
			ART UNIT	PAPER NUMBER

1731

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,706

Applicant(s)

YONEDA ET AL.

Examiner

Queenie Dehghan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) 12 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Group I (claims 1-11) in the reply filed on April 3, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

1. The disclosure is objected to because of the following informalities: the abstract exceeds 150 words. Furthermore,

- a. In [0053], lower mold 3 does not exist.
- b. In [0072] and [0089], preform 3 does not exist.
- c. In [0081], 12 is a space, but in [0070] 12 is a pin.

Appropriate correction is required.

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2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 1 indicates a mold moving a distance "h" micrometers and also refers to a height of a closed space in "h" micrometers. It is not clear as to if these are suppose to be identical distances, clarification is requested. However, it will be interpreted as identical distances.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (5,817,161) in view of Nomura (5,188,650) and Ikeda (4,055,615).

Regarding claim 1, Takagi et al. disclose a method for manufacturing optical elements comprising: an upper and lower mold (col.2 line 54), where at least one of molds is vertically movable (col. 3 lines 7-8, 13-14) and has a shape such that when the glass material (1) is in contact with the upper and lower mold, a molding surface of one of the molds forms a closed space (3b) with a surface of the glass material (col. 3 lines 34-35 Fig. 1 & 8). Takagi et al. further disclose heating the glass material by thermal conduction by contacting with the upper or lower molds on the side on which the space is formed (col. 3 lines 36-38). Also, Takagi et al. disclose moving the mold the mold for a distance h micrometers after the glass material has come in contact with the upper and lower molds (col. 2 line 66 to col. 3 line 2, col. 5 lines 44-46), when a temperature of the pressing mold is at a temperature in which the glass material exhibits a viscosity of $10^{10.2}$ poises and wherein a maximum height of the space in the direction of the moving

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of the movable mold is denoted as h micrometers (col. 5 lines 44-49). Takagi et al. fail to teach of supplying heating glass material and a moving rate of the mold while pressing. Nomura teach of a vertically slidable mold used for pressing optical elements (col. 2 lines 48-52), where glass material is supplied at a temperature less than a temperature at which the glass material exhibits a viscosity of 10^{11} poises (col. 4 lines 31-36). Ikeda teach a press mold that moves at a speed less than 10mm/min (col. 4 lines 5-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the heated glass of Nomura and the moving rate of Ikeda in the molding process of Takagi et al. in order to shorten the time needed for the molding process.

8. Regarding claim 6, in addition the elements covered in claim 1, Takagi et al. disclose pressing the glass material when it has reached a temperature such that the viscosity of the glass material is within the range of $10^{7.4}$ to $10^{10.5}$ poises, but fail to teach a temperature difference between the outer surface of the glass and the interior of the glass and a moving rate of the mold while pressing. Nomura teach how a glass blank can have a difference between the temperature of the surface of the glass and the central portion of the glass blank (col. 1 lines 52-55). Ikeda teach a press mold that moves at a speed less than 10mm/min (col. 4 lines 5-6). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Nomura and the moving rate of Ikeda in the molding process of Takagi et al. in order to shorten the time needed for the molding process.

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9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (5,817,161) in view of Nomura (5,188,650) and Ikeda (4,055,615), as applied to claim 6 above, and in further view of Marechal et al. (4,481,023). Takagi et al. fail to teach supplying glass at a temperature with a corresponding viscosity in the range of $10^{7.4}$ to $10^{10.5}$ poises. Marechal et al. teach supplying glass material that has been heated to a temperature such that it exhibits a viscosity about 10^8 to 10^{10} poises (col. 3 lines 57-60, 63-64, col. 4 lines 54-56). It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the heated glass of Marechal et al. in the processes of Takagi et al., Nomura, and Ikeda in order to reduce mold processing time.

10. Claims 2 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (5,817,161) in view of Nomura (5,188,650), Ikeda (4,055,615), Marechal et al. (4,481,023), as applied to claims 1 and 7 above, and in further view of Kataoka et al. (5,904,747). Takagi et al. teach a mold with a concave surface that forms the closed space in Fig. 1 and 8, but do not mention the radius of curvature. Kataoka et al. teach of a mold with concave surface with a radius of curvature r_1 that is smaller than the radius of curvature of the glass material, which has a convex surface, which forms the closed space with the mold in figure 7. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the radius of curvature of Kataoka et al. in the process of Takagi et al., Nomura, Ikeda, and Marechal et al., in order to limit flaws in the optical element to a perimeter outside of the non-functional optical area, as taught by Kataoka et al.

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11. Claims 3, 4, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (5,817,161) in view of Nomura (5,188,650), Ikeda (4,055,615), Marechal et al. (4,481,023), as applied to claims 2 and 8 above. Takagi et al. disclose applying a pressure on the mold to press the glass after being in contact with the upper and lower molds and traveling a distance of h micrometers (col. 5 lines 42-49). Takagi et al. further apply a second pressure to the glass, but the pressure is not of increasing value (col. 6 lines 15-16). Nomura teach increasing the pressure applied to a glass material while in the molding process, wherein a first pressure of 50kgf/cm² was increased to 120kgf/cm² after 30 seconds (and after traveling a certain distance) and further increased to 200kgf/cm² after another 60 seconds (Figure 4 and col. 5 lines 3-8, 41-4, 57-59). The increasing pressure rate from 50kgf/cm² to 120kgf/cm² after 30 seconds and to 200kgf/cm² after 60 seconds can be calculated as follows:

$$(120\text{kgf/cm}^2 - 50\text{kgf/cm}^2)/30 \text{ seconds} = 2.3 \text{ kgf/cm}^2 \text{ per second}$$

$$\text{or } 0.023 \text{ kgf/mm}^2 \text{ per second}$$

$$(200\text{kgf/cm}^2 - 120\text{kgf/cm}^2)/60 \text{ seconds} = 1.3 \text{ kgf/cm}^2 \text{ per second}$$

$$\text{or } 0.013 \text{ kgf/mm}^2 \text{ per second}$$

It can be seen that the increasing pressure rate is less than 0.5 kg/mm² per second. It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the increasing pressure rate of Nomura in the process of Takagi et al., Ikeda, and Marechal et al., in order to speed up the molding process as the glass is further heated up.

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12. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takagi et al. (5,817,161) in view of Nomura (5,188,650), Ikeda (4,055,615), and Marechal et al. (4,481,023), as applied to claims 4 and 10 above. Takagi et al. disclose a two step pressing method where the glass has been pressed while the mold has move a distance h (col. 5 lines 44-49) followed by a pause in pressure (col. 5 lines 56-57), indicating a moving rate of the mold to be zero and then resume moving the mold again to continue pressing the glass material (col. 6 lines 15-20) indicating an increase in the moving rate of the mold (from zero to moving) after the mold has moved a distance h.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. It is further noted that similar to Takagi et al., Hirota et al. (4,915,720) also teach molding glass articles with a mold temperature, such that the glass has a viscosity in a range of 10^8 to $10^{9.5}$ poises and that glass with a viscosity of $10^{10.5}$ to 10^{12} poises can only be pressed a few micrometers (col. 2 lines 47-49, 63-64). Also, both Shigyo et al. (5,173,100) and Izumitani et al. (4,738,703) teach of a distance that the mold is moved while pressing glass is in the order of microns (col. 2 lines 41-42, col. 3 lines 30-32, respectively) and that it can be controlled by a flange meeting the mold (Shigyo et al. col. 5 lines 25-27).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Queenie Dehghan whose telephone number is

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(571)272-8209. The examiner can normally be reached on Monday through Friday
8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on 571-272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


STEVEN P. GRIFFIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

Q Dehghan